Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
International Bureau Seeks Comment on Recommendations Approved by World Radiocommunication Conference Advisory Committee	)	IB Docket No. 16-185

COMMENTS OF INMARSAT

Inmarsat Inc. ("Inmarsat") hereby responds to the Federal Communications Commission ("FCC" or "Commission") International Bureau Public Notice seeking comment on recommendations approved by the World Radiocommunication Conference Advisory Committee.[1]

I. INTRODUCTION

Inmarsat's comments are informed by its perspective as a global provider of fixed and mobile broadband services over satellite, terrestrial, and hybrid networks utilizing diverse frequency bands. Additionally, Inmarsat's comments reflect its commitment to the realization of a robust, effective 5G ecosystem that will benefit all Americans. Inmarsat understands the importance of adopting appropriate policies and making sufficient spectrum available to enable the full benefits of broadband connectivity, including 5G. However 5G systems will be different than previous terrestrial broadband networks. 5G will not be any one technology, frequency band, deployment scenario, or business model. Instead, the 5G experience will rely upon a "network of networks" that uses various network technologies, integrated air interfaces, frequency bands, and service providers to deliver ubiquitous connectivity across many devices.

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[1] International Bureau Seeks Comment on Recommendations Approved by World Radiocommunication Conference Advisory Committee, *Public Notice*, IB Docket No. 16-185, DA 19-172 (rel. March 11, 2019) ("Public Notice").

As numerous international standards organizations, regulators, and the International Telecommunication Union ("ITU") have recognized, International Mobile Telephony ("IMT") (including IMT-2020) has both terrestrial and satellite components, which will need to work together to deliver on the promise of 5G. New use cases enabled by 5G will include enhanced mobile broadband ("eMBB"), ultra-reliable and low-latency connectivity ("uRLLC), and massive machine type communications (MMTC). While each of these categories and more will be part of the 5G ecosystem, there will not be a single network that simultaneously and effectively supports each of these 5G use cases. Achieving the speed, capacity, latency, coverage, and reliability goals of 5G will only be possible through a heterogeneous network that relies upon multiple technologies to serve end users. Satellite communications will be a key component of that system, alongside terrestrial mobile broadband.

As the Commission develops policies and international positions designed to promote 5G deployment and efficient spectrum use, it is important to consider the roles, significance, and needs of all technologies, and to choose policies that enable all technologies to thrive, while not depriving the public of the benefits of any technology. This includes both identifying steps to enable next generation systems with diverse characteristics and designs, but also ensuring sufficient protection and opportunities for growth in systems that are already relied upon today in the United States and around the world.

II. COMMENTS ON SPECIFIC PROPOSALS

Inmarsat appreciates this opportunity to provide its views on the recommendations of the WRC Advisory Committee, and it shares its views with respect to three particular items addressed in Attachment A to the Public Notice.

A. Document WAC/080

Document WAC/080 contains a recommended United States proposal for Agenda Item 10 and a draft new Resolution on Radiocommunications for Sub-Orbital Vehicles. The *invites ITU-R* provision of the proposed draft new resolution calls for the ITU-R to identify for WRC-23 revisions to the ITU Radio Regulations to facilitate radiocommunications for the safe operation of sub-orbital vehicles "excluding any changes to ITU Radio Regulation Article 5 – Frequency Allocations."[2]

Inmarsat disagrees with the text precluding ITU-R from suggesting any changes to Article 5 of the Radio Regulations. This language is overbroad and would unduly restrict the options available to ITU-R in its work. For example, this text would rule out consideration even of a footnote being added to existing allocations related to their use for sub-orbital vehicles. In light of the immediately following clause in the draft, which also excludes "imposing any undue constraints on other services", this text is unnecessary and should be eliminated or modified to allow for limited changes to Article 5, consistent with the purposes of the draft Resolution.

B. Document WAC/082

Document WAC/082 contains a proposal upon which the working group members were not able to reach a consensus for WRC-19 Agenda Item 1.13, regarding the identification of frequency bands for the future development of International Mobile Telecommunications (IMT), in accordance with Resolution 238 (WRC-15) for the frequency range 43.5 - 47.2 GHz. Two views are presented in Attachment A to the Public Notice. View A proposes to identify mobile spectrum in the 45.5-47 GHz band for the terrestrial component of IMT, and to allocate spectrum

[2] Public Notice, Attachment A at 23.

in the 47-47.2 GHz band to the mobile serve and identify the same for the terrestrial component of IMT. View B proposes no change to the current allocations in 45.5-47 GHz and 47-47.2 GHz.

The FCC should accept View B and support a proposal of no change ("NOC") to the 45.5-47 GHz and 47-47.2 GHz bands. As is articulated in View B, no sharing and compatibility studies were conducted in ITU-R Task Group 5/1 during the 2015-2018 study period between IMT-2020 systems and the relevant incumbent services in the 45.5-47 GHz and 47-47.2 GHz bands. Therefore, there is no basis upon which to conclude that terrestrial IMT services can coexist with the incumbent services in this band, and moreover no proposals related to technical or operational conditions necessary to ensure compatibility between these services. In the absence of such information, there simply is no factual basis upon which the Commission could conclude that compatibility between terrestrial IMT and the incumbent services in this band is achievable, and thus, there is no basis for the Commission to support the recommendation of View A.

C. Document WAC/083

Document WAC/083 contains a proposal upon which the working group members were not able to reach a consensus for WRC-19 Agenda Item 1.13, regarding the identification of frequency bands for the future development of International Mobile Telecommunications (IMT), in accordance with Resolution 238 (WRC-15) for the frequency range 50.4-52.6 GHz. Two views are presented in Attachment A to the Public Notice. View A proposes to identify mobile spectrum in the 50.4-51.4 GHz and 51.4-52.6 GHz bands for the terrestrial component of IMT. View B proposes no change to the current allocations in the 50.4-52.6 GHz frequency bands.

The Commission should accept View B and support a proposal of NOC to the 50.4-52.6 GHz bands. The Commission should support View B because it has already identified ample

spectrum in the 37.5-52.6 GHz range to support the projected needs for the terrestrial component of IMT. Indeed, relevant ITU-R studies determined that 6.1 GHz of spectrum is required to support terrestrial IMT needs in this frequency range, and the Commission has already proposed to make 7.5 GHz of spectrum in this range available for terrestrial use, in the frequency ranges 37-43.5 GHz and 47.2-48.2 GHz.

The 7.5 GHz of terrestrial IMT spectrum the Commission has identified is a huge injection for terrestrial IMT, and terrestrial operators should be given the opportunity to demonstrate their ability to effectively use this spectrum to satisfy public needs before further identifications for terrestrial IMT are made in this frequency range. Compatibility studies conducted in this band have shown that IMT systems will cause exceedance of the EESS (passive) protection criteria, potentially interfering with passive systems that play a key role in disaster prediction, response, and risk reduction, which further weighs in favor of holding off on additional terrestrial IMT identifications in this frequency range.

Moreover, spectrum in the 50.4-52.6 GHz band will be relied upon by satellite IMT operators as a key building block of their systems, which as discussed above, will be essential to the realization of the Commission's 5G vision. Therefore, the FCC will best promote 5G and IMT-2020 by supporting View B, which recognizes the success the Commission has had so far in identifying millimeter wave band spectrum for terrestrial IMT and also supports continued availability of spectrum to support key satellite 5G applications.

III. CONCLUSION

Inmarsat appreciates this opportunity to contribute to the Commission's consideration of the important recommendations of the WRC Advisory Committee. The WRC-19 will address many important issues related to radiocommunication, including how best to ensure sufficient

spectrum is available to protect public safety; promote widespread deployment of communications services to the unconnected and underconnected; support continued innovation, scientific research, and exploration; and ensure the development of a robust and reliable 5G ecosystem. These goals can only be achieved through a balanced spectrum policy that considers the needs and merits of all technologies and industry sectors. Inmarsat supports the Commission in its continued efforts to strike such a balance.

Respectfully submitted,

/s/ M. Ethan Lucarelli

M. Ethan Lucarelli
Director, Regulatory and Public Policy
Inmarsat Inc.
1101 Connecticut Avenue, NW
Suite 1200
Washington, D.C. 20036
(202) 248-5150

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